

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
18 September 2003 (18.09.2003)

PCT

(10) International Publication Number  
**WO 03/076660 A1**

(51) International Patent Classification<sup>7</sup>: C12Q 1/68, G06K 9/62, G06F 17/17

(21) International Application Number: PCT/JP02/02354

(22) International Filing Date: 13 March 2002 (13.03.2002)

(25) Filing Language: English

(26) Publication Language: English

(71) Applicant (for all designated States except US): F.HOFFMANN-LA ROCHE AG [CH/CH]; 124, Grenzacherstrasse, CH-4070 Basle (CH).

(72) Inventors; and

(75) Inventors/Applicants (for US only): AOKI, Yuko [JP/JP]; 3-6-2, Kowada, Chigasaki-shi, Kanagawa 253-0012 (JP). HASEGAWA, Kiyoshi [JP/JP]; 1-1-1103, Shonan Skyheight, 5056-6, Ohba, Fujisawa-shi, Kanagawa 251-0861 (JP). ISHII, Nobuya [JP/JP]; 5681-604, Ohba, Fujisawa-shi, Kanagawa 251-0861 (JP). MORI, Kazushige [JP/JP]; 5203-20, Ohba, Fujisawa-shi, Kanagawa 251-0861 (JP).

(74) Agents: SHIMIZU, Hatsushi et al.; Kantetsu Tsukuba Bldg. 6F, 1-1-1, Oroshi-machi, Tsuchiura-shi, Ibaraki 300-0847 (JP).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

**WO 03/076660 A1**

(54) Title: METHOD FOR SELECTING DRUG SENSITIVITY-DETERMINING FACTORS AND METHOD FOR PREDICTING DRUG SENSITIVITY USING THE SELECTED FACTORS

(57) Abstract: Based on drug sensitivity data and extensive gene expression data, a model was constructed by multivariate analysis with the partial least squares method type 1. Further, the model was optimized using modeling power and genetic algorithm. Thereby, the degree of contribution of the respective genes to drug sensitivity was determined to select genes with a high degree of contribution. In addition, the levels of gene expression in specimens were analyzed, and then the drug sensitivity was predicted based on the model. The predicted values agreed well with those drug sensitivity values determined experimentally. The drug sensitivity-predicting method provided by the present invention enables assessment of the effectiveness of a drug prior to administration using small quantities of specimens associated with diseases such as cancer. Since this enables the selection of the most suitable drug for each patient, the present invention is very useful in improving a patient's quality of life (QOL).